REMARKS

Favorable reconsideration and allowance of the present application are respectfully requested in view of the following remarks. Claim 5 is added in this reply. Therefore, claims 1-5 are pending in the application. Claims 1 and 2 are the independent claims.

Claim Rejections Under 35 U.S.C. § 102(a) - Tanimoto

Claims 1-4 were rejected under 35 U.S.C. § 102(a) as being anticipated by Tanimoto et al. (U.S. Patent No. 6,698,217; hereinafter "Tanimoto"). This rejection is respectfully traversed.

Tanimoto discloses a refrigeration apparatus which can continue to operate as it is without inducing any degradation of performance of a compressor when one of compressors is broken down. Specifically, the refrigeration apparatus include a plurality of compressors connected with each other. When a breakdown detecting device detects breakdown of one of the compressors, the refrigeration operation is performed by actuating other compressors. However, Tanimoto is not concerned with providing a liquid injection passageway that is connected to the oil return passageway. The present invention seeks to eliminate abnormal noise due to the intermixture of gas refrigerants in the suction pipe of compressor. Through the liquid injection passageway, refrigerating machine oil and gas refrigerant flowing in the oil return passageway are injected into the suction side of the compressors. Consequently, liquid refrigerant of the liquid injection passageway is mixed with the gas refrigerant and abnormal noise due to the intermixture of gas refrigerants is suppressed. Tanimoto is not directed to provide such features.

Furthermore, the Office Action contends that element 10 of Figure 1 and column 9, lines 15-17 of Tanimoto teaches a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors as in the present invention. Applicants respectfully disagree. Contrary to the assertion, element 10 of Figure 1 and the cited passage merely describe a liquid pipe (10) connecting to a heat exchanger (4). Specifically, high pressure gas from the compressors enters into the heat exchanger (4) to produce liquid refrigerant and

flows into the liquid pipe (10). The other end of liquid pipe (10) is branched to connecting liquid pipes (11) and (12) for the operation of an inside unit (1B) and a refrigerating unit (1C). However, the liquid pipe (10) is not a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors as required in the present invention.

Thus, Tanimoto does not disclose or suggest "a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors, wherein said oil return passageway is connected to said liquid injection passageway in which gas refrigerant in said oil return passageway is mixed with said liquid refrigerant prior to injecting into the suction side of said compressors" as recited in the independent claim 1 of the present invention.

Independent claim 2 recites "a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors, wherein said gas injection passageway is connected to said liquid injection passageway in which gas refrigerant in said gas injection passageway is mixed with said liquid refrigerant prior to injecting into the suction side of said compressors". As discussed with respect to claim 1 above, none of the relied upon portions of Tanimoto teaches or suggests a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors as in the present invention.

In addition, the Office Action asserts that elements 2A, 2B, and 8 of Figure 1 and column 9, lines 3-11 of Tanimoto disclose a gas injection passageway through which gas refrigerant is injected into the suction side of compressors as in the present invention. However, element 8 of Figure 1 and the cited passage of Tanimoto describe a high pressure gas pipe for discharging gas refrigerant and oil from the compressors. In other words, element 8 of Figure 1 is a gas pipe for directing output of the compressors. Contrary to the assertion of the Office Action, the gas pipe is not a gas injection passageway through which gas refrigerant is injected into the suction side of compressors. The present invention seeks to eliminate abnormal noise due to the intermixture of gas refrigerants in the suction pipe of compressor. Through the liquid injection passageway, gas refrigerant in the gas injection passageway is injected into the suction side of the

compressors. Consequently, liquid refrigerant of the liquid injection passageway is mixed with the gas refrigerant and abnormal noise due to the intermixture of gas refrigerants is suppressed. Tanimoto is not directed to provide such features.

Thus, Tanimoto does not disclose or suggest "a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors, wherein said oil return passageway is connected to said liquid injection passageway in which gas refrigerant in said oil return passageway is mixed with said liquid refrigerant prior to injecting into the suction side of said compressors" as recited in the independent claim 2 of the present invention.

In view of the above remarks regarding independent claims 1 and 2 it is respectfully submitted that Tanimoto does not anticipate the present claimed invention as claimed in independent claims 1 and 2. As claims 3 and 4 are dependent on independent claims 1 and 2 respectively, it is respectfully submitted that claims 3 and 4 are patentable for the same reasons as discussed above in regards to independent claims 1 and 2. Consequently, it is respectfully requested that the rejection of claims 1-4 under 35 USC 102(a) be withdrawn.

Claim Rejections Under 35 U.S.C. § 102(b) - Kitamoto

Claims 1-4 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kitamoto (U.S. Patent No. 4,870,831; hereinafter "Kitamoto"). This rejection is respectfully traversed.

Kitamoto describes an air conditioner system with oil level control for parallel operated compressors. The system includes an outdoor unit having at least two variable-capability compressors and an outdoor heat exchanger coupled to the compressors having lubricating oil supplying sections coupled together by an oil-balancing member. However, Kitamoto is not directed to providing a liquid injection passageway that is connected to the oil return passageway. The present invention seeks to eliminate abnormal noise due to the intermixture of gas refrigerants in the suction pipe of compressor. Through the liquid injection passageway, refrigerating machine oil and gas refrigerant flowing in the oil return passageway are injected

into the suction side of the compressors. Consequently, liquid refrigerant of the liquid injection passageway is mixed with the gas refrigerant and abnormal noise due to the intermixture of gas refrigerants is suppressed. Nowhere in Kitamoto is there mention or suggestion of these features.

Furthermore, the Office Action contends that elements 3 and 4 of Figure 1 and column 3, lines 53-60 of Kitamoto teaches a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors as in the present invention. Applicants respectfully disagree. Contrary to the assertion, elements 3 and 4 of Figure 1 and the cited passage of Kitamoto merely describe a pair of check valves 3 and 4 connecting to compressors 1 and 2 respectively for controlling the flow of the cooling medium gas outputting from the compressors. However, the check valves are not liquid injection passageway. The check valves are merely switches for controlling flow direction of the cooling medium gas. Also, even assuming the check valves were liquid injection passageway, the check valves are not liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors as required in the present invention.

Thus, Kitamoto does not disclose or suggest "a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors, wherein said oil return passageway is connected to said liquid injection passageway in which gas refrigerant in said oil return passageway is mixed with said liquid refrigerant prior to injecting into the suction side of said compressors" as recited in the independent claim 1 of the present invention.

Independent claim 2 recites "a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors, wherein said gas injection passageway is connected to said liquid injection passageway in which gas refrigerant in said gas injection passageway is mixed with said liquid refrigerant prior to injecting into the suction side of said compressors". As discussed with respect to claim 1 above, none of the relied upon portions of Kitamoto teaches or suggests a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors as in the present invention.

In addition, the Office Action asserts that elements 1, 2, 42, and 44 of Figure 1 and column 6, lines 4-13 disclose a gas injection passageway through which gas refrigerant is injected into the suction side of compressors as in the present invention. However, elements 42 and 44 of Figure 1 and the cited passage describe oil bypass pipes for returning lubricating oil back to compressors. Contrary to the assertion of the Office Action, the oil bypass pipes are not gas injection passageway through which gas refrigerant is injected into the suction side of compressors. The present invention seeks to eliminate abnormal noise due to the intermixture of gas refrigerants in the suction pipe of compressor. Through the liquid injection passageway, gas refrigerant in the gas injection passageway is injected into the suction side of the compressors. Consequently, liquid refrigerant of the liquid injection passageway is mixed with the gas refrigerant and abnormal noise due to the intermixture of gas refrigerants is suppressed. Kitamoto is not directed to provide such features.

Thus, Kitamoto does not disclose or suggest "a liquid injection passageway through which liquid refrigerant is injected into the suction side of said compressors, wherein said oil return passageway is connected to said liquid injection passageway in which gas refrigerant in said oil return passageway is mixed with said liquid refrigerant prior to injecting into the suction side of said compressors" as recited in the independent claim 2 of the present invention.

In view of the above remarks regarding independent claims 1 and 2 it is respectfully submitted that Kitamoto does not anticipate the present claimed invention as claimed in independent claims 1 and 2. As claims 3 and 4 are dependent on independent claims 1 and 2 respectively, it is respectfully submitted that claims 3 and 4 are patentable for the same reasons as discussed above in regards to independent claims 1 and 2. Consequently, it is respectfully requested that the rejection of claims 1-4 under 35 USC 102(b) be withdrawn.

New Claims

Claim 5 is added through this Reply. The claim depends from independent claims 1 and 2. Therefore, for at least due to their dependency thereon, the new claims are also distinguishable over the cited prior art of record. Applicants respectfully request that the new claim be allowed.

CONCLUSION

In view of the above remarks, it is believed that claims are allowable.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact D. Richard Anderson, Reg. No. 40, 439 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: July 19, 2007

Respectfully submitted,

By _____

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